CLAIMS

What is claimed is:

1. A magnetic memory comprising:

a plurality of magnetic memory elements;

at least one wrapped write line, each of the at least one wrapped write line including a bottom write line and a top write line, the bottom write line residing below a portion of the plurality of magnetic elements, the top write residing above the portion of the plurality of magnetic elements, the bottom write line for carrying a first current in a first direction, the top write line for carrying a second current in a second direction opposite to the first direction.

2. A magnetic memory comprising:

a plurality of magnetic memory elements;

at least one wrapped write line, each of the at least one wrapped write line including a bottom write line and a top write line electrically connected to the bottom write line, the bottom write line residing below a portion of the plurality of magnetic elements, the top write residing above the portion of the plurality of magnetic elements, the bottom write line for carrying a first current in a first direction, the top write line for carrying a second current in a second direction opposite to the first direction.

3. The magnetic memory of claim 2 wherein the bottom write line is a magnetic

bottom write line including a soft magnetic material.

4. The magnetic memory of claim 3 wherein the bottom write line includes a plurality of layers, a portion of the plurality of layers including the soft magnetic material.

5. The magnetic memory of claim 2 wherein the bottom write line includes a nonmagnetic core having a plurality of surfaces and a magnetic cladding layer on a portion of the plurality of surface.

6. The magnetic memory of claim 2 wherein the top write line is a magnetic top line including a soft magnetic material.

7. The magnetic memory of claim 6 wherein the top write line includes a plurality of layers, a portion of the plurality of layers including the soft magnetic material.

8. The magnetic memory of claim 2 wherein the top write line includes a nonmagnetic core having a plurality of surfaces and a magnetic cladding layer on a portion of the plurality of surface.

9. The magnetic memory of claim 2 wherein of the at least one wrapped write line is electrically connected to the plurality of magnetic elements.

10. The magnetic memory of claim 9 wherein the top write line is electrically connected to the portion of the plurality of magnetic elements.

11. The magnetic memory of claim 2 further comprising:

at least a second write line oriented substantially orthogonal to the at least one wrapped write line.

12. The magnetic memory of claim 11 wherein the at least the second write line is electrically connected to the plurality of magnetic elements.

13. A method for providing a magnetic memory comprising:

(a) providing a plurality of magnetic memory elements;

(b) providing at least one wrapped write line, the step of providing the at least one wrapped write line further including the steps of

(b1) for each of the at least one wrapped write line, providing a bottom write line, the bottom write line residing below a portion of the plurality of magnetic elements, the bottom write line for carrying a first current in a first direction,;

(b2) for each of the at least one wrapped write line, providing a top write line electrically, the top write residing above the portion of the plurality of magnetic elements, the top write line for carrying a second current in a second direction opposite to the first direction.

14. A method for providing a magnetic memory comprising:

(a) providing a plurality of magnetic memory elements;

(b) providing at least one wrapped write line, the step of providing the at least one wrapped write line further including the steps of

(b1) for each of the at least one wrapped write line, providing a bottom write line, the bottom write line residing below a portion of the plurality of magnetic elements, the bottom write line for carrying a first current in a first direction,;

(b2) for each of the at least one wrapped write line, providing a top write line electrically connected to the bottom write line, the top write residing above the portion of the plurality of magnetic elements, the top write line for carrying a second current in a second direction opposite to the first direction.

15. The method of claim 14 wherein the bottom write line providing step (b1) further includes the step of:

(b1i) providing a magnetic bottom write line including a soft magnetic material.

16. The method of claim 15 wherein the magnetic bottom write line providing step (b1i) includes the step of:

(b1ia) providing a plurality of layers, a portion of the plurality of layers including the soft magnetic material.

17. The method of claim 14 wherein the bottom write line providing step (b1) includes the steps of:

(b1i) providing a nonmagnetic core having a plurality of surfaces; and

(b1ii) providing a magnetic cladding layer on a portion of the plurality of surface.

18. The method of claim 14 wherein the top write line providing step (b2) further includes the step of:

(b2i) providing a magnetic top write line including a soft magnetic material.

19. The method of claim 18 wherein the magnetic top write line providing step (b2i) includes the step of:

(b2ia) providing a plurality of layers, a portion of the plurality of layers including the soft magnetic material.

20. The method of claim 14 wherein the top write line providing step (b2) includes the steps of:

(b2i) providing a nonmagnetic core having a plurality of surfaces; and

(b2ii) providing a magnetic cladding layer on a portion of the plurality of surface.

21. The method of claim 14 wherein of the at least one wrapped write line is

electrically connected to the plurality of magnetic elements.

22. The method of claim 21 wherein the top write line is electrically connected to the portion of the plurality of magnetic elements.

23. The method of claim 14 further comprising:

(c) providing at least a second write line oriented substantially orthogonal to the at least one wrapped write line.

24. The method of claim 23 wherein the at least the second write line is electrically connected to the plurality of magnetic elements.